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S. F. TILLMAN, Editor

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"SIMPLIFIED PRACTICE GUARDS AGAINST OVER-INVESTMENT"

SIMPLIFIED PRACTICE

Edwin W. Ely.

Address all inquiries regarding Simplified Practice to Mr. Edwin W. Ely, Division of Simplified Practice, United States Department of Commerce, Washington, D. C.

1. RESULTS AND BENEFITS

Results and Benefits of Applying Simplified Practice
To Woven-Wire Fencing.

By - H. P. Dalzell

(Research Section).

Undoubtedly, the greatest single factor operating for the successful application of Simplified Practice Recommendation No. 9-28, is the high degree of adherence it has been accorded by the manufacturers. In the years 1925 and 1926, fencing made in accordance with the recommendation represented, respectively 97 and 99 per cent of the total output of the accepters. This in spite of the fact that the original recommendation reduced the styles of fencing from 552 to 69 or 88 per cent and sizes of fence packages from 2,072 to 138, or 93 per cent. The general conference of the industry adopted this recommendation in July, 1923, and it remained unchanged until May 1928. At that time the simplified list was further reduced to 62 styles of fencing and 117 sizes of packages.

Such faithful support of the program on the part of the manufacturers is evidence of their high estimate of its advantages, but tells us nothing of the distributors' or users' attitude. In an effort to get a complete picture of this simplified practice in operation the department addressed a general letter to each accepter asking for a frank appraisal of benefits of the program in the light of his own experience, and suggestions as to how it might be improved.

Wholesale and retail hardware dealers credit inventory reduction and increased turnover to simplified practice. One said: "While we can not state exactly the value of simplification in this particular line, we estimate that this practice has increased our net profits on fencing at least 25 per cent. This is due to less invested capital and a much quicker turnover."

Consumers are enjoying better service, more dependable quality, and protection against under-gauge products when they purchase the simplified styles of fencing. That they are quick to realize these advantages can be seen from the fact that distributors have no trouble in suggesting and substituting simplified sizes and styles when customers call for sizes that have been eliminated.

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Among the benefits listed by the manufacturers are: smaller inventories, quicker turnover, reduced warehouse space requirements and less interruptions for readjustment of machinery. The following, coming as it does, from a small manufacturer, is interesting: "We have never figured out in dollars and cents what the simplified practice means to us, but no doubt it would amount to quite a sum in the course of a years business, although we are only small producers of woven-wire fence.

The complete results of this survey have been summarized in a five page mimeographed circular which can be had upon request.

2.

DIVISION OF SIMPLIFIED PRACTICE.

Lead Pencils: The acceptance of the modification to the simplification program for lead pencils which was placed before the acceptors of the original schedule has reached practically the same volume as the original schedule. This recommendation will be sent to the Government Printer in the near future and will be issued as one of the publications in the Elimination of Waste Series.

Dental Hypodermic Needles. The report of the meeting to consider the simplification of these needles has been completed and sent to all manufacturers for their comments. The Simplified Practice Committee of the industry appointed at the meeting will receive comments and suggestions on the tentative schedule and will perform all necessary work in connection with the completion of the program to be used as the basis for a general conference of all interests.

Bright Wire Goods: Interest has been revived in the simplification of bright wire goods, a project started some time ago. These goods include brass and steel wire screw eyes, screws, hooks, and gate hooks and eyes. Indications are that this project will be carried along the basis of the original suggestion, - that is, the elimination of the seldom-called-for sizes and numbers.

Shoe Goring: A meeting of manufacturers of shoe goring was held in New York on February 14th, to which a representative of the Division was invited for the purpose of explaining the cooperative service of the Division. A Simplified Practice Committee of the industry was appointed which is now engaged in drawing up a tentative recommendation from the results of a survey conducted by the Webbing Manufacturers' Exchange. When this work is completed another meeting will be held.

Restaurant Guest Checks: A meeting of manufacturers of these checks was held in Washington on February 21 to consider simplification of such checks. A tentative schedule has been drawn up as the result of that meeting, and is now before the manufacturers for their suggestions and comments. A tentative recommendation will be drawn up from the returns, to be used as the basis for a general conference of all interests.

Soft Fibre Cordage: A meeting of manufacturers of Soft Fibre Cordage, that is, cordage made of jute, hemp or istle, was held in New York on February 18. A Simplified Practice Committee of the industry was formed at that meeting. The conferees considered a report of varieties in current demand, from which a tentative schedule has been drawn. This schedule is now before the manufacturers for suggestions and comments. The returns will be used as the basis for an agenda for a general conference of all interests.

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Welded Chain: The Division has received a sufficient number of signed acceptances from manufacturers, distributors, and users, for Simplified Practice Recommendation No. 100 - Welded Chain - to insure the general adoption of the recommendation by the industry as a whole. The recommendation is therefore announced as effective forthwith.

Sterling Silver Flatware: The Standing Committee for Simplified Practice Recommendation No. 54 - Sterling Silver Flatware, has reaffirmed the existing schedule without change, for another year. A survey conducted by the Standing Committee of the industry indicated the degree of adherence to the recommendation to be 95 per cent. Through the development of this simplification, the industry reduced the varieties of basic patterns and dies from 190 to 61.

Malleable Foundry Refractories: The Standing Committee for Simplified Practice Recommendation No. 79 - Malleable Foundry Refractories, has reaffirmed the existing schedule, without change, for another year. This program, as developed by the industry, reduced the varieties from 188 to 15. According to the report of the Standing Committee, the adherence to this program is 65 per cent."

Roofing Slate: The Standing Committee for Simplified Practice Recommendation No. 14 - Roofing Slate, has reaffirmed the existing schedule (First Revision) without change, for another year. Through the development of this program the industry reduced the varieties from 98 to 49.

Floor Sweeps: A sufficient number of acceptances having been received for Simplified Practice Recommendation No. 88 - Floor Sweeps, the Division announces that this program is now in effect. This simplification reduced the varieties of floor sweeps from 11 to 6, or an elimination of 45 per cent.

Blackboard Slate: The Standing Committee for Simplified Practice Recommendation No. 14, Blackboard Slate, has reaffirmed the existing schedule, without change, for another year. Through the development of this simplified program, the industry reduced the varieties of slab heights and sizes from 251 to 52, or an elimination of 79 per cent.

Structural Slate for Plumbing and Sanitary Purposes: The Standing Committee for Simplified Practice Recommendation No. 13 - Structural Slate for Plumbing and Sanitary Purposes (First Revision) has reaffirmed the existing schedule, without change, for another year. This program reduced the varieties from 827 to 138.

Ice Cake Sizes: A sufficient number of acceptances having been received, the Division announces that Simplified Practice Recommendation No. 96, Ice Cake Sizes, is now in effect. Through the promulgation of this simplification industry established five standard weights with maximum dimensions.

Forms Bureau: In last month's issue of "The Commercial Standards Monthly," comment was made on a contemplated organization of a simplification and standardization bureau by the National Retail Dry Goods Association. At the 18th Annual meeting of the National Retail Dry Goods Association held last month in New York City, The Conference unanimously adopted resolutions recommending the establishment of a central research bureau to determine simplified and standardized specifications. This action now waits the official action of the Board of Directors of the Association.

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Industrial College: Last month a representative of the Division of Simplified Practice addressed the student body of the Army Industrial College in Washington, D. C., on the subject of Elimination of Waste through Simplification and Standardization. The students are all officers of the regular army, navy, and marine corps, studying war-time procurement plans of the War Department. The work being done in peacetime by industry, through simplified practice, will prove of invaluable assistance in the advent the War Department has to meet a National emergency.

Army Aides Simplification: The part that the Army or rather the Quartermaster Corps, is playing in the National picture of Simplification, was recently told to the Quartermaster Reserve Officers of Washington, D. C., by Captain Edwin M. Scott, U. S. A. In his address Captain Scott said that the Army had, and is still eliminating several varieties of items of equipment, and concentrating on as few varieties as practicable.

Printed Recommendations: Copies of the printed pamphlets for Simplified Practice Recommendation No. 78, Iron and Steel Roofing; Simplified Practice Recommendation No. 19; Asbestos Paper and Asbestos Millboard; Simplified Practice Recommendation No. 92 - Hard Fiber Twine, and Simplified Practice Recommendation No. 9, Woven Wire Fencing, are now available for purchase through the Superintendent of Documents, Government Printing Office, Washington, D. C., at 5 cents a copy.

New Publications: A mimeographed list of completed simplified practice recommendations, and commercial standards, numbering 101, in all, may be secured without cost by addressing the Division of Simplified Practice, United States Department of Commerce, Room 316, Commerce Building, Washington, D. C.

Pocket Knives: Acceptances of Simplified Practice Recommendation No. 99 - Pocket Knives - have been coming in very satisfactorily and it is felt that the Division will be able to announce within a short time that it has received the signed support of 80 per cent (by volume of business) of the industry.

Tubular Rivets: It was recently suggested that tubular rivets and eyelets were susceptible of simplification. The industry is now circularizing all manufacturers to ascertain whether or not there is a need for simplification in their industry. Replies to date indicate that a reduction in the varieties would be of considerable benefits to all concerned.

Steel Bathroom and Medicine Cabinets: The Simplified Practice Committee of the steel bathroom and medicine cabinet industry, at a meeting held in Chicago on February 8th, drafted a tentative simplified practice recommendation covering steel bathroom and medicine cabinet and has requested the Division to call a general conference of all interests to consider the program for approval. It is probable that this meeting will be held in the latter part of March, or early in April.

Glass Containers for Preserves, Jellies and Apple Butter: The Division is in receipt of advice from the Counsel of National Preservers Association and the Chairman of Standing Committee, that Simplified Practice Recommendation No. 91 for Glass Containers, for Preserves, Jellies and Apple Butter has been accepted by packers and distributors representing more than 80 per cent of the volume of production. The effective date for the

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program is January 1, 1929, for new production and January 1, 1930 for clearance of eliminated varieties.

Bottles for Carbonated Beverages: A satisfactory response is being made by manufacturers in connection with the variety survey to ascertain facts concerning production and demand for various types of bottles. This data will be used in the preparation of a consolidated report for the information of the Joint Simplified Practice Committee in developing a tentative simplified practice recommendation covering capacities, heights, diameters and weights of glass.

Hospital Plumbing Fixtures: At a preliminary conference held in Chicago, on February 20th, attended by hospital consultants, manufacturers and architects, a simplified list of sizes, dimensions, etc. of hospital plumbing fixtures was recommended. This tentative recommendation will be used as a basis for the adoption of a definite simplified practice recommendation, at a subsequent general conference of all concerned, to be held under the auspices of the Division of Simplified Practice.

Buffing Wheels: The Simplified Practice Committee of the industry is now working on the preparation of a questionnaire to ascertain the production and demand for the various types of buffing wheels. From the figures obtained the Simplified Practice Committee will work out a tentative recommendation for diameters, plys, sewing, weights, grades, etc.

Luggage: At the request of the National Luggage Dealers Association the Division is making plans for a general conference of manufacturers, distributors and users as well as express, steamship and pullman companies. The sizes recommended by the dealers association will be used as the agenda for discussion at a meeting, the date of which will be announced in the near future.

Tight Cooperage: The Division has received a request from the Associated Cooperage Industries of America to arrange for a general conference of manufacturers, distributors and users of tight wooden barrels and kegs for the purpose of adopting a simplified practice recommendation covering definite dimensions for staves, heading, bilge circumference, etc. The recommended sizes worked out by the Simplified Practice Committee of the industry will be used as the agenda for discussion at the conference, the date of which will be announced in the future.

What It Is and What It Offers: The revised pamphlet of the Division of Simplified Practice, "What it is and What It Offers," is now available to the public, through the Superintendent of Documents, Government Printing Office, Washington, D. C., at 15 cents a copy. This booklet is a summary of the activities of the Division of Simplified Practice and a description of the services offered to American industries by the Division.

3. SIMPLIFICATION CENSUS COMPLETED

The results of the recently completed survey by the Druggists Research Bureau of toilet goods stocks carried by the druggists of the country are announced in "Drug Topics" for January, 1929. Stores were classified by volume of daily sales in three classes, under \$60; \$60 to \$100, and \$100 a day. The survey brought out that the

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largest stores carry larger assortments than smaller ones, but stores in the smallest places were found to have less extensive stock than stores of the same size in the largest cities.

On the average, the largest stores reported having the most fast sellers. Over 50 per cent of the average number of brands of face powders carried by drug stores of all classifications were reported slow sellers, as were almost 40 per cent of shaving preparations, over 40 per cent of tooth pastes, over 50 per cent of cold creams, over 65 per cent of talcum powders, and about 55 per cent of hair tonics carried. The survey brought out that druggists generally purchase all of their toilet items, with the exception of fast sellers, in quarter and half dozen lots. The number of brands carried by stores of the same size in different parts of the country was reported to vary little with the exception of the Pacific Coast States, where the tendency was noted for stocks to be somewhat more expensive than elsewhere, and the Southeastern States, returns from which were too few to permit generalization.

The object of the survey was announced to be the collection and classification of the facts about stock control in important lines of toilet goods from druggists in every part of the country so that druggists everywhere might know the situation in their locality and be able to determine on the basis of the census, the amount of stock on various lines in the toilet goods department which will produce the greatest possible profits, turnover, and sales.

4. A REMEDY

"What is the remedy for 'profitless prosperity!'" is the title of an article by Mr. Edward A. Filene, President of William Filene's Sons Company appearing in "ADVERTISING AND SELLING." After a thorough discussion of the problem, Mr. Filene expresses the belief that the answer is to be found in the universal adoption of the most scientific mass methods of production and distribution.

"By these terms I mean the processes by which greatly increased quantities of articles are made at low cost through the practical elimination of overhead expense per unit and the elimination of great wastes," said Mr. Filene in his article, adding that "the principles of mass production, which enable it to drive other methods out of competition, are axiomatic and quite simple. They are briefly: (1) Scientific management and improved machinery increase the output per man; (2) Simplification and Standardization of products also add enormously to the volume; (3) Overhead expense is reduced, through the volume of production, to the point where the charge against each unit is relatively small."

5. SIMPLIFIED DESIGNS

A large public utility, operating in Western Pennsylvania, has in the past few years transferred a number of its 25 kv. indoor controls to outdoor equipment, and from time to time improvements have been made in the methods used. The original standard sub-station bay has been superseded by a greatly simplified design which allows a saving of some 10 per cent in ground area per double bay, without sacrificing clearances, etc.

As a result of the new design, the number of items of steel were reduced from 54 to 9. In turn, the number of pieces per double bay was reduced from 355 to 224, a reduction of 20% without undue loss of strength or ruggedness. All of the necessary pieces are double punched which eliminates there being any right or left hand pieces. A number of unused holes in the steel is the result which, however, seems warranted due to the simplification effected. The weight of the steel was reduced approximately 22% per double bay. This also allowed quite a saving in erection costs. A new grouping of controls expedites and simplifies the removal of a line from service to clear it for maintenance and repairs. The new dimensions of the double bay allowed the use of lighter steel for the struts but necessitated use of larger and longer copper tubing for both main and reserve buses. However, the added size and strength of the new bus tubing was more than offset by the elimination of 17 rather expensive interchangeable insulator units.

The rugged simplicity and comparative compactness of the new structure makes it adaptable to general use, no matter how large or small the new station requirements may be. Ease of assembly and operation have been obtained but not at the expense of economy.

6. STANDARDIZE COLOR SIGNALS

The French Minister of Public Works is studying a project entailing the complete national standardization of the colored signal lights used on French railroads, based on a plan submitted by the French Railway Commission. The plan involves the use of three clearly-defined colors; green, red and yellow-orange, indicating respectively: "track clear ahead," "stop" and "Warning, slow down." It is proposed to keep all signals illuminated night and day. Up to the present time the use of all signals illuminated night and day. Up to the present time the use of signals has varied from one French railway to another. A national standard for all railways has long been sought and the present project represents the initial step toward a much needed reform. The actual changes to be made throughout France presumably will require a period of from 5 to 6 years to complete.

7. SIMPLIFIED INVOICE LEAGUE.

"The simplified invoice offers a means of eliminating waste for it will reduce checking, paying, reporting, filing and finding expenses. Those familiar with the evil of customer invoices know how they disrupt office routine and increase cost of billing. Those executives who desire to free themselves from the customer invoice evil have their opportunity now. They need merely urge upon all vendors, no matter how big, the use of the simplified invoice." Such an opinion was voiced in the columns of the January issue of "The New England Purchaser."

The February issue of "The Oklahoma City Purchaser" carries the following pertinent remarks: "To these firms (now using the simplified invoice form) the Oklahoma City Purchaser wishes to express appreciation for their consideration of the needs of the purchasing and accounting departments of the customers and feels that this expresses the views of the entire membership of our association. To those firms who have

not yet seen their way to adopt the simplified form in their billing, we would suggest, that, in the first place, an invoice is a document made up for the sole convenience of the customer and he is entitled to have one that will save his time. To meet that condition many have devised a form of their own and demanded its use by suppliers. Thus the Customer's Invoice nuisance arose. The new form eliminates the need for that entirely, but the customer is entitled to its adoption by suppliers."

"In the second place, many suppliers are no doubt justifiably proud of the neat and artistic design of their own particular invoice form and base a degree of confidence in its advertising value. Now we ask, what kind of an impression is likely to be made on any purchaser when he tries hurriedly to find a shipping date, an invoice date, a discount or term of payment, an f.o.b. point, a car number, a routing, a shipping point, an invoice number, an order number, or any such, and has to hunt all over the invoice to find it, or even find that it is missing altogether? How does he feel when he tries to file in an accessible manner an invoice of neat postage stamp dimensions, or to fold and file neatly and quickly one of table cloth proportions? Is there any "advertising" better than giving a purchaser what will help him do his work better and quicker."

"Finally, the Simplified Invoice Form is the combined work of men from many industries and is designed so as to take care of any one's particular needs. And so, we say, get wise to the situation, and at least look into the matter. Have one of our members give you a sample copy and explain its advantages. But by all means, if and when you adopt it for your billing, make no changes in form or size other than those indicated on the sample, for by so doing you destroy the usefulness of the form in the purpose for which it is intended."

Some one has facetiously defined a bill or invoice as a sheet usually showing part of the necessary details regarding materials purchased. These sheets usually have more sizes, shapes and headings than any other commercial instrument. The simplified invoice form does away with all these disadvantages.

It is reported that 52% of the national manufacturers, large jobbing houses and distributors in the Southwest, and 33 $\frac{1}{4}$ % of the local companies and small jobbers are using the simplified invoice form.

Mr. Walter Kirkman, Purchasing Agent for the Central Purchasing Bureau of the State of Maryland, says that their office furnishes its own invoices to the dealers and that they have always used the simplified invoice form.

"Industrial Organization and Management," a recent book, carries a replica of the simplified invoice form on Pages 236 and 237, with explanatory statements.

Some remarks taken at random from correspondence received from purchasing agents follows:

"***** I believe in due course of time, we will be receiving 100% simplified invoices, which will be a great help in filing and also keeping record of these invoices.

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"We really believe this form to be a great help in speeding up office routine and certainly are for it, having adopted it about a year ago."

"I feel quite sure that all Purchasing Departments that have a large number of invoices to handle each day would welcome a uniform form. The space allotted to customer's use is particularly desirable as we find that on at least 60% of the invoices coming into this Department, there isn't room enough on the face to accommodate our approval stamp, which is about the size of the space you have allotted for customer's use."

"We are in hearty accord with this simplified form and would like to see it universally adopted."

The New England Purchasing Agent's Association still leads in the number of reports forwarded by its members, with the Purchasing Agents Association of Philadelphia "close on their heels." These Associations have done splendid work in this survey, 59 and 56 reports respectively have been received. Other Associations and firms are cooperating in this survey and are to be commended for the surveys they have submitted.

The Division of Simplified Practice invites all firms and associations to review their incoming invoices over a period of ten (10) to fifteen (15) days, and then inform the Division as to the number which conform in all respects to the simplified invoice form. Invoices which only partly conform to this standard should not be counted. Our intention is to publish these reports in succeeding issues of the Commercial Standards Monthly. Our purpose is to promote the general adoption of this form, wherever possible and practicable in the movement for elimination of waste. For the current report of the league see Appendix.

8. CAP STANDARDS.

According to Mr. P. C. Dodge, Chairman of the Standardization Committee of the Glass Container Association of America, the glass and cap finish standards developed by the Glass industry, have been accepted by manufacturers producing 95 per cent of the catsup bottles, and by 100 per cent of the manufacturers of the caps.

9. SIMPLIFIED PRACTICE SAVES COMPANY

A story of how the application of Simplified Practice saved one firm from going out of business, is told by Mr. H. R. Simonds in a recent issue of Iron Trade Review. In his story Mr. Simonds said that the character of management will determine the destiny of a concern, and then proceeds to illustrate this statement by a concrete case. Mr. George C. Soule was selected by the bankers that had taken over the management of a company to bring order out of confusion, which he did, through a simplification program.

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10. CONSUMERS AND SIMPLIFIED PRACTICE.

That the average individual citizen is interested in simplified practice and wants to know more about it, is attested to by letters received by the Division of Simplified Practice. Recently Mrs. Albert Hayden, Chairman of the Family Finance Department of Middle North District, General Federation of Women's Clubs, Tiffin, Ohio, telegraphed the Division for 50 copies of a speech delivered by Ray M. Hudson, the Assistant Director of the Bureau of Standards, in charge of the Commercial Standards Group, before the annual convention of the general Federation of Women's Clubs held last summer in San Antonio, Texas.

The theme of this address was "Increasing the Purchasing Power of the Consumers Dollar." The individual occupies a prominent part in the movement to eliminate waste through simplification and standardization, for if he, or she, will concentrate, his or her daily purchases of the staple articles, upon the simplified lines, merchants will very quickly drop the non-profitable items. Why buy five varieties of one article when one will answer the same purpose?

MARINE STANDARDS

A. V. Bouillon

All inquiries for information pertaining to the work of the American Marine Standards Committee, should be addressed to the Secretary, Mr. A. V. Bouillon, United States Department of Commerce, Washington, D C.

11. COMMITTEE NEWS

The Executive Board has recently held two meetings at which the following principle items of business were transacted; Messrs. E. L. Steward, W. W. Smith and A. S. Hebble, Chairman respectively of the Technical Committee on "Hull Details" "Engineering Details," and "Ship Operation Details and Supplies" were appointed advisory members to the Board.

The following applications for membership were approved:

Richfield Oil Company of California, Los Angeles, California; Tregoning Boat Company, Seattle, Washington; The Upson-Walton Company, Cleveland, Ohio; Pacific Steamship Company, Seattle, Washington.

The project to standardize uniforms for Merchant Marine Officers was ordered to be proceeded with. Proposed standard rules to cover certain principal details of hull construction were ordered to be further developed for submittal to the membership. A suggestion was approved to develop standards for ends of beams or strong backs and sockets in deck hatches. The following standards were approved for promulgation:

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Chinaware for ship equipment - Kinds and sizes: Caps for tubular steel cargo booms (superseding standard approved at meeting of May 23, 1928): Lifeboat disengaging apparatus - General specifications; The rat proofing of ships - General instructions; Chocks for ships; Plain open chocks; Plain closed chocks; Open chocks with one end roller; Closed chocks with one end roller; Open roller chocks; Closed roller chocks; Chocks with center pillar, plain ends; Chocks with center pillar, one plain and one roller ends; Chocks with center pillar and roller ends.

The Chairman was authorized to appoint a special standing committee on interpretation of standards, the function of which will be to decide questions that may rise in the use of the marine standards promulgated by the Committee, particularly as to their meaning. The following officers were elected for the year 1929:

Chairman, Colonel E. A. Simmons, President, Simmons-Boardman Publishing Company, New York, New York; Vice Chairman, Captain R. D. Gatewood, (CC), U. S. N., Manager, Maintenance and Repair Division, U. S. S. B. Merchant Fleet Corporation, New York, New York; Secretary, A. V. Bouillon, Room 312, Commerce Building, Washington, D. C.

Proposed standard rules for design and construction of marine boilers and pressure vessels and a proposed standard specification for marine boiler steel plates have been submitted to the membership and others concerned for critical comment.

A preliminary draft of proposed standard specifications for wire ropes for marine uses has been developed and is about to be submitted to the technical committees.

Progress is being made on revised preliminary drafts of proposed standards for flanged pipe fittings.

Publication AMSC 51 containing approved standard regulations for stability and loading of ships was recently distributed.

Organization of a technical committee on port facilities is expected to be completed at an early date.

COMMERCIAL STANDARDS

I. J. Fairchild

Address all inquiries on the subject of Commercial Standards to Mr. I. J. Fairchild, Commercial Standards Unit, Bureau of Standards, Washington, D. C.

11. COMMERCIAL STANDARDS UNIT

The principle of "caveat emptor" has become hopelessly inapplicable to current commerce and progressive producers are planning to protect their trade brands, reputation and good will by certifying to the consumer that the quality conforms to nationally recognized commercial standards, particularly in those fields where quality can not readily be determined by the average individual. This trend is evident by the constantly increasing number of requests for our cooperation in the establishment of commercial standards.

STODDARD SOLVENT

The Commercial Standard CS3-28, covering Stoddard Solvent (Dry Cleaning), has been issued in printed form by the Department of Commerce. It covers detailed requirements as to appearance, color, odor, flash point, distillation range, acidity, and absorption, and includes methods of sampling and testing adopted by the entire industry as a means toward establishing a better understanding between producers and consumers on what constitutes a satisfactory quality of this important solvent used by the dry-cleaning industry. Copies may be obtained at 10 cents each from the Superintendent of Documents, United States Government Printing Office, Washington, D. C.

DRESS PATTERNS.

The general conference of producers, distributors, consumers, and educators, held in New York City on February 7th, adopted a Recommended Commercial Standard for Dress Patterns covering corresponding body measurements and widths of materials recognized as standard for pattern layouts and for listing on dress patterns. A report of the conference including the detailed recommendations which are to become effective not later than January 1, 1930, has been distributed to interested organizations for written acceptance. Copies may be obtained upon request from the Commercial Standards Unit, Bureau of Standards, Washington, D. C., or from the Bureau of Costume Art, National Retail Dry Goods Association, 225 West 34th Street, New York, New York.

TEMPLATE HARDWARE

A recommended Commercial Standard for Template Hardware, as approved by the Advisory Committee on Standardization of Builders' Hardware and the Hollow Metal Door and Trim Manufacturers Association, has just been sent to interested organizations for written acceptance. It covers detailed dimensions of cylinder locks, lock fronts and strikes, as well as the regular types of butts and hinges used with hollow metal doors. Copies may be obtained upon request from the Commercial Standards Unit, Bureau of Standards, Washington, D. C.

BRASS PIPE NIPPLES

Announcements have been issued to the effect that the Recommended Commercial Standard for Brass Pipe Nipples has been accorded the necessary support to warrant publication by the Department of Commerce and therefore may be listed among the rapidly growing number of successful commercial standards established by the voluntary cooperation of industry.

FUEL OILS

The Recommended Commercial Standard for Domestic and Industrial Fuel Oils was distributed for written acceptances to a long list of oil refiners, distributors, and consumers, as well as to manufacturers of oil burning equipment. Many commendatory comments have been received regarding this important step toward a better understanding between oil refiners and consumers. Numerous acceptances are being received from refining companies as a basis of production and from consumers as a guide to purchases. The recommended specification, together with acceptance form will be mailed upon request addressed to the Commercial Standards Unit, Bureau of Standards, Washington, D. C.

WALL PAPER

A standardization committee was appointed at a recent convention of the Wall Paper Manufacturers Association to draft tentative specifications for Commercial Standard Grades of wall paper. The committee is conducting numerous tests from the consumer viewpoint to determine the most satisfactory grade for paper stock and the fastness of various colors used. A meeting is tentatively scheduled for March 21st, at which time the results of tests will be considered for incorporation into a proposed specification.

HICKORY GOLF SHAFTS

The Hickory Golf Shaft Manufacturers Association has formulated tentative specifications for hickory shafts for golf clubs. A committee from this organization has cooperated with a committee from the Golf Club Manufacturers Association in rounding out the specification, which, when finally approved by the producers, will be offered to consumers, distributors, and general interests for comment and criticism at a general conference.

SPECIFICATIONS

A. S. McAllister.

Address all inquiries on matters pertaining to Specifications and Certification and Labeling Plan, to A. S. McAllister, Division of Specifications, Bureau of Standards, Washington, D. C.

13. ENGINE TESTING

One year ago this month the Bureau of Standards began testing new commercial airplane engines as a basis for the granting of approved type certificates by the Aeronautics Branch of the Department of Commerce. The type certificate authorizes the use in licensed aircraft of any engine conforming to the specifications of the engine submitted for type test and specifies the speed and power rating of such engines.

To date, 21 type tests have been undertaken by the Bureau of Standards, and of this number, 4 have been withdrawn, 11 have failed, and 6 have completed the test successfully. The results indicate the importance of type testing as a protection to the public. The number of airplane engines intended primarily for commercial use which are under development at the present time exceeds all estimates made last year, and the Bureau is planning to install additional testing facilities in the near future.

14. AIR GROUPS MEET.

The fifth annual Army-Navy Conference for the standardization of Aeronautical materials and parts was held in Philadelphia last month. Drawings and specifications were considered by the conference. It is held by interested officials that the results of this conference are destined to have a far-reaching effect on the aircraft industry and its current development.

WILLING-TO-CERTIFY MANUFACTURERS.

There has been compiled by the National Bureau of Standards 248 lists of such firms, about 2000 separate companies, as have expressed to the Bureau their desire to have their names placed on the lists of manufacturers, willing, when requested to do so, to certify to purchasers that material supplied in accordance with the designated 248 United States Government master specifications complies with the requirements and tests of these specifications, and is so guaranteed by them. Copies of any of these lists of manufacturers, which are now being prepared for distribution, can be obtained upon request.

The groups of commodities covered by the specifications to which the certification plan has been applied, together with numerical references to the individual specifications are as follows:

BRUSHES AND BROOMS

191	201	396	406a	518
192	202	397	407	519
193	203	398	511	520
194	204	399a	512	521
195a	205	400	513	522
196	206	401a	514	523
197	207	402	515	524
198	208a	403	516	525
199	332	404a	517	526
200	333a	405		

ELECTRICAL SUPPLIES

23b	58	175	311
55	62	291	312
57	65	292	

FIRE EXTINGUISHERS AND LIQUID

36a	124	213
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GLASS

123

BUILDERS HARDWARE

336

INKS

163	165	265a	379
164	166	266a	

CEMENT, PORTLAND

1a

LEATHER GOODS

37	183	184	241
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LIME AND PLASTER

247 248 249 250

LIQUID MEASURING DEVICES

362

PACKING AND GASKETS

93	100	105	108	487
95	101c	106	485	
99	102	107	486	

PADLOCKS

413a

PAINTS AND PAINT MATERIALS

4b	10b	16	22	278
5	11	17	66	283
6	12	18b	67	375
7b	13b	19	115	376
8	14b	20a	137a	475b
9	15	21b	239a	476

PAPER

127a	135a	182a	324	330
128a	177a	319	325	331a
129a	178a	320	326	425
130a	179	321	327	426
131a	180	322	328	484a
132a	181	323	329	

PIPE AND PIPE FITTINGS

162a	342a	393	535
242	343a	480	

REFRACTORIES

268a 334a 335a

RIBBONS, TYPEWRITER, ETC.

167a 168a 169a

ROAD AND PAVING MATERIALS

275	277	280	282
276a	279	281	

ROOFING, BITUMINOUS AND WATERPROOFING

80	84	88	296
81	85	214	380
82	86	294	423
83	87	295	424

ROPE WIRE

297

SAFES, BURGLAR, RESISTING

363

SCALES, RAILROAD TRACK

314

SCREWS, WOOD

52a

SOAPS AND SCOURING COMPOUNDS

26	29	32	35	246
27	30	33a	244	
28	31	34a	245	

TABLEWARE, SILVERPLATED

411

TEXTILESBed Supplies

301 302 303 304 305

Carpets and Rugs

501 502 503

Cheesecloth

251a 252b 253b 344

Denim, Brown and Blue

254b 255a 256b 257a

Buck, Cotton

53 159 160

Rags and Waste

259a	261a	263a
20	262a	264

Shades and Shade Cloth

367b 555b

Miscellaneous

422	497a	499	540	557
466	498	500	556	

TUBING, METALLIC

287 347 349 427a

DISTRIBUTION

15. BUSINESS MORTALITY STUDY BEGUN

The study of business mortality which the Domestic Commerce Division is undertaking is being started in Louisville, Kentucky, in connection with the food distribution survey now being conducted here. The study of the causes of failures of retail establishments will be concentrated particularly on such factors as organization, financial structure, credit extension methods, and ratio of investment and inventories, to volume of sales. It is anticipated that a diagnosis of individual businesses will furnish important data not only on the principal causes of failure, but also on contributing factors.

16. DRY GOODS COST STUDY.

The inadequacy of a single turnover figure for a department or a line of goods carried was brought out in a special analysis of 1927 turnover in the hosiery and knit goods department of the wholesale dry goods house whose distribution costs are being analyzed by the Domestic Commerce Division, of the Department of Commerce. The one control figure which the buyer had established for the whole department for that year was a 2.2 turnover. For the purposes of the analysis all of the items in this department were grouped into 24 sub-departments, examination of which brought out grave discrepancies between the volume of sales furnished by a commodity and the percentage it represents of the total inventory of the department. Items were found to range from 10 to 0.3 turns for the year. There was sufficient inventory of the last item to take care of three years' sales. Further analysis of men's hose as representing a line within the department reveals a turnover ranging from about 8 turns a year on cotton bundle hose to less than 2 turns on fancy wool hose. The problems of color obsolescence was found especially serious in hosiery.

17. STANDARD ACCOUNTING PLAN

The Journal of Commerce reports the adoption by the Wholesale Dry Goods Institute at its recent convention of a system of uniform classification of accounts to provide comparable expense figures for the trade. The plan is for the Institute to secure confidential reports and percentages showing the proportion of expense for the various items in different houses for the same general volume grouping. This interchange of information, it is anticipated, will not only enable members to see where they are ahead or behind but will make it possible for the Institute without revealing the identity of firms to study and report on the methods of houses unusually successful in maintaining a low figure for particular expense items.

18. BUSINESS CONTROL METHODS

The following methods of business control for successful retailing are recommended by the Bureau of Business and Government Research, University of Colorado, Boulder, Colorado.

- (1) Operate the business on a strict budget plan. Budget sales, purchases, expenses, and profits for a year in advance, and check monthly actual performance against estimates.
- (2) Study salaries and wages.
 - (a) Keep comparative sales records of individuals to compare with amount of salary.
 - (b) Assign personnel definite responsibilities, and plan tasks in advance so as to eliminate lost motion or idle time.
 - (c) Give more attention to salesmanship training.
 - (d) Insist on suggestive selling.
- (3) Study to reduce taxes and insurance through overstock elimination.
- (4) Study methods of reducing delivery expense by establishing regular schedules to avoid unnecessary trips. Utilize the time of delivery men in other productive activities.
- (5) Establish a definite credit policy and adhere to it as closely as possible. Make careful selection of credit risks and adopt systematic methods of collecting outstanding accounts.
- (6) Study and adopt the most effective methods of advertising. Increased expenditures for this purpose should be rewarded with increased sales and profits.
- (7) Devote more time to the larger activities of the business, planning for sales and studying the methods of the more successful dealers.

RESEARCH

19. RESEARCH GROUPS ORGANIZE

One of the services offered by the School of Business Research Administration of the University of Michigan, is the organization of Research Groups for the exchange of figures. Cooperating stores report their departmental figures to the school monthly and receive the recapitulated figures for all stores reporting. Members of each group are non-competing. The cost to the stores varies from \$2.50 to \$5.00 a month, depending on the amount of work done. Where it seems desirable, meetings are conducted with representatives of the stores for discussion of the figures. The figures are utilized by the Bureau in such fundamental research investigations as the study of departmental stock sales ratios. All figures are kept confidential, but the Bureau reserves the right to publish the results of any fundamental studies, provided that the interests of no individual cooperator are violated.

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20. SLAG BRIDGES

The National Slag Association has just released its Symposium No. 13, Slag Bridges and other Water Resisting Structures. This Symposium is one of a series pertaining to the characteristics and uses of blast furnace slag, prepared by the Association, 937 Leader Building, Cleveland, Ohio, for presentation to its members and to the membership of various committees in a number of technical organizations. The cost of the publication, which is copyrighted, is 25 cents per copy.

21. IMPROVED EQUIPMENT

Dr. George K. Burgess, Director of the Bureau of Standards, has been informed of the inauguration of a program for improving electrical equipment sold to the public, and that the Electrical Testing Laboratories, 80th and East End Avenue, New York City, has been designated as the technical and testing agent to operate under the auspices of the Appliance Committee, in the conduct of this quality improvement activity of the Association of Edison Illuminating Companies. The method to be employed in this research program, consists essentially in; surveys of qualities and performance characteristics of electrical equipment; constructive application, as may prove practicable, of the facts revealed by such surveys; communication of results to Central Station Companies; ultimately grading of brands as to qualities and performance for the guidance of the industry.

22. HIGHWAY REPORT

The report of the investigation of paving and general highway conditions by the engineering commission, appointed by The National Paving Brick Manufacturers Association, has been released in printed form. The purpose of this investigation was to obtain an up-to-date picture of the present status of the highway business, with reference to the general economic status of the urban and rural highway conditions of the country. For copies or information of this report readers of the Commercial Standards Monthly should write to The National Paving Brick Manufacturers Association, Washington, D. C.

23. ORIFICE METERS REPORT

The March, 1929, issue of the Bureau of Standards Journal of Research contains a paper describing the orifice meter investigation carried out at Edgewood Arsenal in cooperation with the Chemical Warfare Service of the Army, and gives the principal results obtained with square edged orifices such as are commonly employed in the commercial metering of large volumes of gas. Absolute rates of discharge were measured by means of flow nozzles. This method has been investigated both experimentally and theoretically, and it appears to be the most convenient and accurate one now available for measuring high rates of flow. The discussion of this subject is an important part of the paper.

24. FORMS ASSOCIATION

Nine non-competing firms, with national distribution, have formed an association for the promotion of research in distribution methods. Membership in the association is limited to 15 companies. The 9 companies already admitted are producers of inks, carbon paper, type ribbons and pens; pencils and erasers; crepe paper, tags and labels; stationery, commercial and social; kodaks, films, and photographic paper;

office equipment; office records; looseleaf and blank books; playing cards and accessories; and a firm of book publishers. None of these companies sells goods direct to consumers, but through stationery and book stores, drug stores, and other common outlets.

The purpose of the association are, free interchanges of information or experience in distribution and marketing; avoidance of duplication of research in distribution methods; and the carrying on of new studies by special committees. The sales managers of the respective associations form one such committee, the export sales managers another, and other committees are composed of the advertising managers, office and warehouse managers, and research directors of member companies. Such topics are taken up for consideration as methods of training dealers' sales people, new export regulations, and foreign commerce promotion.

25. RESEARCH BUREAU

The New England Shoe Manufacturers' Research Bureau, an outgrowth of the shoe manufacturers' committee created to advise the New England Council in its study of shoes in New England in 1928, has been formed for cooperative attack on the problems facing the industry. Several of the ten leading firms which have united to form the Bureau are in competition with each other.

Committees composed of executives of the member firms have been formed to deal with specific problems. These committees meet regularly for the exchange of ideas and experience data on the problem under consideration and endeavor to reach common conclusions, which are available to all member firms.

BUILDING AND HOUSING

James S. Taylor.

All inquiries on this subject should be addressed to Mr. James S. Taylor, Division of Building and Housing, United States Department of Commerce, Washington, D. C.

26. BUILDING CODE

The Building Code Committee, composed of nationally known architects and engineers appointed in 1921 to prepare recommended building code requirements has just issued a tentative report entitled Recommended Minimum Requirements for Fire Resistance in Buildings. This report has been distributed widely among interested persons and organizations, and criticisms have been invited. When these have been received and considered the report will be brought out in printed form as the seventh of a series. Previous reports have covered small dwelling construction, plumbing masonry walls, live load assumptions, code arrangement and working stresses. Among the subjects taken up in the present report are recommendations as to height of buildings of different types of construction from the standpoint of fire protection, types of buildings permitted in various fire districts, and kinds of protection necessary for various structural members. An Appendix contains an extended discussion of the principles underlying logical fire resistance requirements and of the information which is available on the subject at the present time.

UTILIZATION OF WASTE

27. USE OF WASTE WOOD

There is sufficient non-utilized wood in Virginia available as raw material for various industries to load a train extending from Washington, D. C. to New York City, announces the National Committee of Wood Utilization, in connection with the release of the publication of a survey of wood and wood waste in Virginia, which is the first of a series to be undertaken by the Committee.

28. WOOD UTILIZATION PLAN

The National Committee on Wood Utilization of the Department of Commerce is working out a plan of close wood utilization, said to affect 40 per cent of American factories now using wood as a primary raw material. Under the plan proposed these industrial consumers will be enabled to obtain their lumber supplies cut to exact sizes, ready for use without further and consequent waste incurred in present practice, which often require the cutting of small dimension stock from year lumber. A handbook is to be prepared, it is announced on the manufacture of so-called small dimension stock.

Standardization of sizes is reported to have been accomplished in a number of such industries and further standardization of the component wooden parts of manufactured articles will be encouraged by the National Committee.

Before work in the consumers' field is taken up, the Committee plans to develop a satisfactory source of supply, which it believes can best be done by establishing standard practice for the cutting and seasoning of small dimension stock. The committee regards the further refining of lumber at its source as a healthy development and as economically sound.

29. END MATCHED LUMBER APPROVED

A study by the Forest Products Laboratory of the Forest Service made at the request of the National Committee on Wood Utilization, has established that end matched flooring and subflooring of considerably shorter average length, and with joints at random, may be substituted for standard length construction lumber with all joints on supports, without significant decrease of efficiency in the stiffness of the construction, distribution of concentrated loads and alignment of joints, studs, or rafters.

The use of end matched softwood lumber for finish flooring laid directly on joints is not recommended for living rooms, dining rooms, and kitchens although under ordinary conditions of service, such flooring may apparently be used with safety in other rooms.

ELIMINATION OF WASTE

30. YARDSTICK MEASUREMENT

A new measuring stick to determine the exact degree of employment and industrial efficiency in the United States through the compilation of man-hours of work in the industrial censuses and a further refinement of the census figures to determine the exact number of hours men in great industrial plants are exposed to hazard by a computation of the "hazard hours" of employment, are sought by the American Engineering Council. At its annual convention held last month in Washington, the Council passed resolutions to "take action seeking to have the number of man-hours working in the manufacturing establishments of the United States reported in the next and succeeding censuses of manufacturers."

31. A 1929 PLATFORM

How forty-one prominent distributors will go about making 1929 a profitable year, forms the theme of an article in the Industrial Distributor and Salesman for January. The platform as suggested by these 41 distributors include thirteen "planks." These are: (1) Insist on fair profits; (2) Support manufacturers with sales policies favorable to the distributor; (3) Work for suggested resale prices; (4) Cooperate with fellow distributors in local groups; (5) Support my association; (6) Concentrate on natural territories; (7) SIMPLIFY LINES; (8) Develop an aggressive creative sales force; (9) Concentrate on high profit specialities; (10) Budget my business; (11) Install an adequate cost system; (12) Work for a modification of the anti-trust laws; (13) Carry adequate stocks.

32. Appendix

Simplified Invoice League - Reports received from January 25, 1929 to February, 1929.

Company	Period	Invoices checked	On Simplified Form	Per Cent of Adherence
Rutland Railroad Company Rutland, Vt.	-	-	-	90.00*
Erie Railroad Company Hornell, N Y.	-	-	-	85.00*
Reading Company Reading, Pa.	10 days	1262	555	43.98
W. F. Stewart Company, Flint, Mich.	-	-	-	40.00
Wheeler-Schebler Carburetor Co., Indianapolis, Ind.	1 week	-	-	30.00
Sun Oil Company, Dallas, Tex.	1 week	580	138	28.97

Company	Period	Invoices checked	On Simplified Form	Per Cent of Adherence
Briggs-Weaver Machinery Company, Dallas, Tex.	1 week	444	126	28.38
Missouri-Kansas-Texas R. R. Co., St. Louis, Mo.	10 days	1021	264	25.86
Cleveland Southwestern R. & L. Company, Elyria, Ohio	6 months	-	-	24.09
Texas Portland Cement Company, Dallas, Tex.	1 week	118	28	23.73
Amoskeag Manufacturing Co., Boston, Mass.	15 days	-	-	22.50
Easterline Angus Company, Indianapolis, Ind.	2 weeks	-	-	20.00
General Electric Supply Corp., Boston, Mass.	19 days	761	136	17.80
Sinclair Refining Company, New York, N. Y.	2 weeks*	2581	411	15.92
Worcester Pressed Steel Company, Boston, Mass.	6 weeks	-	-	14.20
Kendall Company, Boston, Mass.	2 weeks	319	54	13.70
Deming Company, Salem, Ohio	1 month	650	89	13.69
Stone & Webster Engineering Co., Boston, Mass.	10 days	570	71	12.46
Penn-Ohio System, Youngstown, Ohio	15 days	1923	237	12.32
Harvard University, Cambridge, Mass.	2 weeks	1444	157	10.80
J. W. Crowds Drug Company, Dallas, Tex.	1 week	300	30	10.00
Denver Purchasing Agents' Assn., Denver, Colo.	-	-	-	10.00*
East St. Louis Rys. Co., East St. Louis, Ill.	2 weeks*	-	-	10.00*

Company	Period	Invoices checked	On Simplified Form	Per Cent of Adherence
Norton Company, Boston, Mass.	18 days	2571	234	9.10
Lever Bros. Company, Boston, Mass.	4 weeks	-	-	9.00
Southern Pacific Company, San Francisco, Calif.	10 days	3124	264	8.45
Simms Oil Company, Dallas, Tex.	1 week	603	50	8.29
Du Pont Viscoloid Company, Boston, Mass.	10 days	367	21	6.00
Washington Ry. & Electric Co., Washington, D. C.	12 days	407	22	5.41
International Shoe Company, Boston, Mass.	2 weeks	-	-	5.00
Loose Wiles Biscuit Company, Boston, Mass.	15 days	-	-	4.50
Massasoit Manufacturing Co., Boston, Mass.	2 weeks	68	3	4.40
Christian Science Pub. Co., Boston, Mass.	2 weeks	-	-	4.00
Boston Consolidated Gas Co., Boston, Mass.	10 days	-	-	2.50
Eastern Mfg. Co., Boston, Mass.	10 days	-	-	2.50
Geo. W. Wheelwright Paper Co., Boston, Mass.	11 months	-	-	2.50
Winslow Bros. & Smith Co., Boston, Mass.	10 days	-	-	2.40
Indiana Columbus & Eastern Traction Company, Springfield, Ohio	2 weeks	-	-	2.02*
Mass. Electric Mfg. Co., Boston, Mass.	10 days	-	-	2.00
Panther Rubber Mfg. Co., Boston, Mass.	1 month	-	-	2.00

Company	Period	Invoices checked	On Simplified Form	Per Cent of Adherence
Converse Rubber Shoe Co., Boston, Mass.	10 days	129	15	1.16
Beacon Oil Company, Boston, Mass.	10 days	-	-	1.00
Carpenter - Morton Company, Boston, Mass.	15 days	-	-	1.00
Dennison Mfg. Co., Boston, Mass.	3 weeks	-	-	1.00
A. A. Johnson Company, Boston, Mass.	7 days	-	-	1.00
L. Sonneborn Sons, Inc., New York, N. Y.	-	-	-	1.00*
Indianapolis Belting & Supply Co., Indianapolis, Ind.	1 week	1500*	11	00.73*

*Approximate.

Simplified Invoice League - The following reports were received from the Purchasing Agents' Association of Philadelphia.

Company # 37	12 days	-	-	51.36
" # 10	"	-	-	31.04
" # 40	"	-	-	29.81
" # 53	"	-	-	29.25
" # 11	"	-	-	27.67
" # 30	"	-	-	25.83
" # 23	"	-	-	25.67
" # 41	"	-	-	25.58
" # 14	"	-	-	24.20
" # 20	"	-	-	20.03
" # 29	"	-	-	18.73
" # 12	"	-	-	18.25

Company	Period	Invoices checked	On Simplified Form	Per Cent of Adherence
Company # 19	12 days	-	-	17.92
" # 1	"	-	-	17.19
" # 28	"	-	-	15.14
" # 39	"	-	-	13.93
" # 3	"	-	-	13.06
" # 4	"	-	-	12.83
" # 36	"	-	-	12.75
" # 52	"	-	-	12.00
" # 13	"	-	-	11.96
" # 45	"	-	-	11.75
" # 48	"	-	-	11.43
" # 25	"	-	-	11.12
" # 35	"	-	-	11.08
" # 21	"	-	-	10.83
" # 16	"	-	-	10.23
" # 24	"	-	-	9.68
" # 18	"	-	-	9.33
" # 56	"	-	-	9.25
" # 26	"	-	-	8.75
" # 46	"	-	-	7.37
" # 17	"	-	-	6.73
" # 55	"	-	-	6.00
" # 32	"	-	-	5.53
" # 8	"	-	-	5.42
" # 2	"	-	-	4.67

Company	Period	Invoices checked	On Simplified Form	Per Cen' of Adherence
Company # 54	12 days	-	-	4.25
" # 7	"	-	-	3.98
" # 22	"	-	-	3.67
" # 6	"	-	-	3.50
" # 42	"	-	-	3.42
" # 43	"	-	-	3.25
" # 15	"	-	-	2.49
" # 38	"	-	-	2.04
" # 9	"	-	-	1.92
" # 27	"	-	-	1.67
" # 47	"	-	-	1.58
" # 34	"	-	-	1.50
" # 50	"	-	-	00.50
" # 49	"	-	-	00.33
" # 5	"	-	-	00.03
" 31	"	-	-	00.00
" # 33	"	-	-	00.00
" # 44	"	-	-	00.00
" # 51	"	-	-	00.00

NEW PURIFICATIONS

33. Bureau of Standards Journal of Research, Vol. 2, No. 2, February, 1929 - by subscription only, \$2.75 per year (United States and its possessions, Canada, Cuba, Mexico, Newfoundland, and Republic of Panama); other countries \$3.50.

Title page and index to Volume 1 of the Journal - free on application to the Bureau of Standards.

Research Papers (reprints from Journal); - RP38. A technical method of using the mercury arc to obtain data at wave length 560 millimicrons in the Spectrophotometric analysis of sugar products; H. H. Peters and F. P. Phelps; price 5 cents. RP39, Reflecting power of beryllium, chromium, and several other metals; W. W. Coolentz and

R. Stair; price 5 cents; RP40- Note on a piezo-electric generator for audio-frequencies; August Hund; price 5 cents. RP41. Heats of combustion of organic compounds; M. S. Kharasch; price 15 cents. RP42. Laboratory corrosion tests of mild steel with special reference to ship plate; H. S. Rawdon, price 5 cents. RP43. Least retinal illumination by spectral light required to evoke the "blue arcs of the retina;" Deane B. Judd; price 5 cents. RP44. The service of refractory blocks in a small experimental glass tank; W. L. Pendergast and Herbert Insley; price 15 cents. Circulars: C371 (superseding C319). Alphabetical index and numerical list of United States Government master specifications, promulgated by the Federal Specifications Board; free on application to the Bureau of Standards. C373. Recommended specifications for quicklime for use in the distillation of ammonia from ammonia liquors obtained in coke and gas manufacture; price 5 cents. C374 X-ray radium protection (Recommendations of International Congress of Radiology); price 5 cents.

Simplified Practice Recommendations. RXI-28. What it is and what it offers (1928 edition); price 15 cents. R9-28 (2nd edition). Woven wire fencing price 5 cents; R19-28 (3rd edition). Asbestos paper and asbestos millboard; price 5 cents; R78-28. Iron and steel roofing; price 5 cents; R89-28. Coated abrasive products; price 10 cents.

Commercial Standards: CS3-28. Stoddard Solvent (Dry Cleaning); price 10 cents.

Miscellaneous Publications: Supplement to M90 (2nd edition), Supplement to the Directory of Commercial Testing and College Research Laboratories: Free on application to Bureau of Standards. M91. Standards Yearbook, 1929, price \$1.00 (foreign, \$1.20). M87. Report of the 21st National Conference on weights and measures (May 22-25, 1928); price 35 cents.

Technical News Bulletin No. 143, March, 1929 - by subscription only, 25 cents per year (foreign 40 cents).

34. SUPPLEMENT DIRECTORY.

The Bureau of Standards announces the release of a printed pamphlet entitled "Supplement to the Directory of Commercial Testing and College Research Laboratories." This pamphlet is intended to accompany Miscellaneous Publication No. 90. Copies may be secured from the Superintendent of Documents, Government Printing Office, Washington, D. C., at a cost of 5 cents per copy.

35. COMMERCE YEARBOOK.

Volume 11 of the Commerce Yearbook for 1928 is now available from the office of the Superintendent of Documents, Government Printing Office, Washington, D. C., at a cost of \$1.25 per copy. The Commerce Yearbook has been described as "A source book of information on world business." It contains Economic Reviews of each individual country including discussions on production, transportation, labor conditions, price movements, public finance, currency and exchange, foreign trade, etc.

36. AIRWAY MARKING.

The report of airway marking committee, has been published by the Aeronautics Branch of the Department of Commerce. Copies of this report may be secured from the Aeronautics Branch upon application. This report sets forth the studies and recommendations of the committee organized to study the subject of airway marking and to recommend a standard system of air marking for general use throughout the United States.

